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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,793	09/03/2003	G.B. Kirby Meacham		6953

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MEACHAM COMPANY  
18560 PARKLAND DRIVE  
SHAKER HEIGHTS, OH 44122

EXAMINER

CREPEAU, JONATHAN

ART UNIT PAPER NUMBER

1745

DATE MAILED: 05/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/654,793

**Applicant(s)**

MEACHAM, G.B. KIRBY

**Examiner**

Jonathan S. Crepeau

**Art Unit**

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7-2-04</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Botti et al (U.S. Patent 6,655,325). The reference is directed to a power generation system comprising a fuel cell (110) and an internal combustion engine (125) upstream of the fuel cell (see Fig. 1). A compressor (100) compresses atmospheric air (1) and sends a first portion (7) to the internal combustion engine and a second portion (8, 9) to the cathode of the fuel cell. The anode and cathode exhausts from the fuel cell may both be recycled to the internal combustion engine. The exhaust streams are further mixed and supplied to a turbine (130) to generate energy. The turbine appears to be on the same shaft as the compressor. The turbine exhaust is fed to a catalytic converter (i.e., afterburner) (135). A heat exchanger (115) uses the afterburner exhaust to preheat the fuel cell reactant streams.

The reference does not expressly teach that the turbine (expander) is downstream of the afterburner, as recited in claims 1 and 13.

However, the invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made because the placement of the afterburner upstream of

the turbine in the system of Botti et al. represents a mere rearrangement of parts of the reference. Generally, in the absence of a new or unexpected result, such a rearrangement is not considered to patentably distinguish over a reference. See MPEP 2144.04. Furthermore, it is noted that the use of exhaust afterburners upstream of turbines is well-known in fuel cell systems and a person of skill in the art would surely be apprised of such configurations.

Regarding claims 6 and 7, it would further be obvious to include a purification device in the fuel gas supply stream (35') to the fuel cell to increase the hydrogen ratio in the stream. Such devices may include preferential oxidation or shift reactors.

It is further noted that the limitations "compressor means to raise the pressure...", "afterburner means to mix and combust...", and "expander means to reduce..." as used in the instant claims are *not* considered to invoke 35 USC 112, sixth paragraph because these recitations are considered to recite sufficient structural elements. All other "means" clauses are considered to invoke 35 USC 112, sixth paragraph. See MPEP 2181.

### ***Conclusion***

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan, can be reached at (571) 272-1292. The phone number for the

Art Unit: 1746

organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jonathan Crepeau  
Primary Examiner  
Art Unit 1746  
May 26, 2006